## REMARKS

**Introduction:**

We refer to the Office Action dated May 4, 2004. The Examiner is thanked for providing this opportunity to present argument regarding the secondary references to Myers and Wilde and the impropriety of the combination of Mikolajczyk or Stolz or Bettis and Myers or Wilde. The reply filed on February 03, 2004 has been supplemented in order to overcome the omission identified by the Examiner. A declaration from the Inventor, Ian Kirk, Appendix I, along with a Letter to Ian Kirk from the Castings Development Centre, Appendix A, are both hereby enclosed. We deeply apologize for inadvertently not including the Letter found in Appendix A in our prior response.

**Rejection Under 35 U.S.C. Section 103:**

Claim 1 was rejected under 35 U.S.C. Section 103(a) as being unpatentable over Mikolajczyk (U.S. Patent No. 5,095,981) or Stolz (U.S. Patent No. 1,807,050) or Bettis (U.S. Patent No. 2,166,116) in view of Myers (U.S. No. 6,039,127) or Wilde (U.S. No. 6,258,180). Applicants deeply appreciate the indication that although Mikolajczyk, Stolz and Bettis disclose centralizers, they do not disclose a centralizer made of austemperized ductile iron. Moreover, Myers discloses: "A rock drilling bit for drilling bores in rock, more particularly to a percussion rock drilling bit. Specifically, a rock drilling bit having hard material cutting inserts affixed to an austempered ductile iron (ADI) drill body, and a method of drilling rock using said bit." (Myers Abstract, Lines 1-5). Myers does not disclose, hint or suggest as to the use of austempered ductile iron as a centralizer. Furthermore, Wilde discloses: "Austempered ductile iron castings

having primary iron carbides uniformly dispersed throughout an ausferritic matrix, and methods of making the same, are described." (Wilde Abstract, Lines 1-3). Therefore, as with Myers, Wilde does not disclose, hint or suggest as to the use of austempered ductile iron as a centralizer.

It is respectfully believed that it is improper to apply an "obviousness to try" standard or indulge in hindsight evaluation or reconstruction. See Ecolochem, Inc. v. Southern California Edison Co., 56 U.S.P.Q.2d 1065 (Fed. Cir. 2000). In this case, what is obvious is that which can only be deduced by a logical step-by-step reasoning process from the premises furnished by the prior art. There is no logical step-by-step reasoning process that can be developed from the premises furnished by the prior art and a showing of a suggestion, teaching or motivation to combine the prior art references is an essential component of an obviousness holding. C. R. Bard, Inc. v. M3 Systems, Inc., 48 U.S.P.Q.2d 1225, 1232 (Fed. Cir. 1998).

**In this case, it is respectfully believed that there is no hint, suggestion or motivation to combine a centralizer disclosed in Mikolajczyk, Stolz and Bettis with austempered ductile iron disclosed in Myers and Wilde.**

To the contrary, to demonstrate that such a combination was not a matter of obvious design choice, a declaration, Appendix I, from Ian Kirk (Inventor) is enclosed detailing the difficulty experienced in manufacturing such a centralizer.

From this declaration it is submitted:

1. The Castings Development Centre (formerly BCIRA) are specialists in leading edge technology through R&D, and failed to manufacture a suitable centralizer despite forty-four (44) years of experience (See their website: www.castingsdev.com). It is

submitted to the Examiner that the expertise at The Castings Development Centre is greater than one of ordinary skill in the art and that given that they failed to succeed in manufacturing a centralizer made from austempered ductile iron ("ADI") than an ordinarily skilled person would inevitably fail to manufacture a centralizer from ADI. Similarly, The Taylor Group being specialists in Ductile and Austenitic Iron castings also failed to manufacture a centralizer from ADI. It is also submitted that the expertise at The Taylor Group is greater than one of ordinary skill in the art and that given that they failed to succeed in manufacturing a centralizer made from ADI than an ordinarily skilled person would inevitably fail to manufacture a centralizer from ADI. Thus, should an ordinarily skilled person consider modifying the centralizer of Mikolajczyk, Stolz or Bettis by manufacture with ADI (ADI is disclosed in Wilde and Myers), they would fail because the attached declaration details those with more than ordinary skill in the art (The Castings Development Centre and The Taylor Group for example), could not reduce such a combination to practice. Thus, one with ordinary skill in the art would not be able to make such a reduction to practice either because they have less skill than The Castings Development Centre and The Taylor Group.

2. Given the difficulties and time involved in finally developing centralizers from ADI, it would not be a routine design choice. Nevertheless should an ordinarily skilled person attempt to make a centralizer from ADI for example by combining Mikolajczyk or Stolz or Bettis with Wilde or Myers, they would quickly be dissuaded from continuing and therefore fail to make such a centralizer because of the difficulties encountered by the present inventors, the Castings Development Centre as well as The Taylor Group. The practical difficulties of making a centralizer from ADI are also detailed in our response dated June 10, 2003. Accordingly, even if the ordinarily skilled person could think of combining Mikolajczyk or Stolz or Bettis with Wilde or Myers in theory, they would not be able to successfully combine said documents in practice.

3. The world-wide commercial success of the centralizer demonstrates that, if this was simply an obvious design choice, it would have been made before this date. In particular, it is noted that the Assignees have invested considerably in the United States, manufacturing such centralizers there and indeed incorporated a U.S. company to sell these centralizers. Thus, the declaration demonstrates the commercial success of the claimed invention which in itself is evidence of non-obviousness.

It is respectively believed that under In re Sang Su Lee, 277 F.3d 1338, (Fed. Cir. 2002), the Federal Circuit Court found that the Board must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the agency's conclusion. The Federal Circuit rejected the Board's conclusory findings based on "common knowledge and common sense" for an individual with ordinary skill in the art. The Federal Circuit Court stated: "For judicial review to be meaningfully achieved within these strictures, the agency tribunal must present a full and reasoned explanation of its decision. The agency tribunal must set forth its findings and the grounds thereof, as supported by the agency record, and explain its application of the law to the found facts." The Federal Circuit Court has often explained: "The Administrative Procedure Act, which governs the proceedings of administrative agencies and related judicial review, establishes a scheme of 'reasoned decision making.' Not only must an agency's decreed result be within the scope of its lawful authority, but the process by which it reaches that result must be logical and rational." Therefore, the Federal Circuit Court expressly prohibited the Board of the United States Patent Office from making determinations of unpatentability as an obvious design choice to a worker of ordinary skill in the art without demonstrating the hint or suggestion for combining the primary reference(s) with the secondary reference(s). It is respectfully believed that this would appear to completely negate the stated reason for citing In re Leshin, 277 F.2d 197, 125 U.S.P.Q. 416 (CCPA 1960) in the Office Action. Moreover, the Applicants contest the applicability of In re Leshin in the present Application. The head note 1 of In re Leshin states "Mere selection of known plastics material ....the selection of the plastics material being on the basis for intended use, is obvious." However, in the present Application the inventors did not *merely* select the

material but had to overcome numerous difficulties and successive failures in designing the centralizer in order to arrive at the invention claimed, as detailed in the enclosed declaration of Appendix I. In re Leshin, no such difficulties are present as described in the discussion regarding claim 13 (bottom page 417). Leshin simply submitted that he has had to select the particular plastic material for his particular purpose. In contrast, the present inventors had to persevere with attempting to manufacture such a centralizer against all the difficulties encountered in doing this. This is in addition to the selection of the material. Thus, it is respectfully submitted that the present patent application is not the same point as that held in In re Leshin because the present inventors have not *merely* selected a suitable material as in In re Leshin but have done much more.

In summary, it is submitted that Mikolajczyk or Stolz or Bettis and Wilde or Myers would not be successfully combined by the ordinarily skilled person because it is evidenced herein that those with great experience in this area could not successfully reduce such a combination to practice, that the ordinarily skilled person would be dissuaded from continuing with such a combination even if he could think of attempting the combination because of the technical hurdles which would result, and that the commercial success of the product described in the present application is evidence in itself of non-obviousness.

Moreover, a significant problem is that centralizers disclosed in Mikolajczyk or Stolz or Bettis is that many operators will not use ductile iron in a down hole since it is generally brittle and a failure down hole can be subject to expensive intervention and lengthy tool downtime. Therefore, the prior art does not teach the source of this problem. It is respectfully believed that ever since Eibel Process Co. v. Minnesota and Ontario Paper Co., 261 U.S. 45 (1923), the U.S.

Supreme Court, the Federal Court of Appeals for the Federal Circuit Court as well as the United States Patent Office has recognized the longstanding rule that discovery of the source of the problem is patentable even if the solution is deemed obvious (which is not the case in the present situation). In this case, the pitch of a papermaking mesh conveyor was altered to impart a component of gravity to the paper stock. Although it was known that altering the pitch of the papermaking mesh conveyor would alter the performance of the machine, it was deemed patentable to discover that the source of the problem, i.e., ripples in the paper stock, could be eliminated by altering the pitch of the paper-making mesh conveyor. In this situation, the use of centralizer made of austemperized ductile iron solves the significant problem associated with a centralizer that is brittle and causes failures down hole resulting in an expensive intervention and lengthy tool downtime.

Accordingly, for these reasons and others, the Examiner is respectfully requested to withdraw his rejection of Claim 1 under 35 U.S.C. 103(a) as being unpatentable over Mikolajczyk or Stolz or Bettis in view of Myers or Wilde.

Claims 2, 3 and 5-8 were also rejected under 35 U.S.C. 103(a) as being unpatentable over Mikolajczyk or Stolz or Bettis in view of Myers or Wilde. As Claims 2, 3 and 5-8 depend from and contain all of the limitations of Claim 1, Claims 2, 3 and 5-8 are felt to distinguish from Mikolajczyk or Stolz or Bettis in view of Myers or Wilde in the same manner as Claim 1.

**Conclusion:**

All objections and rejections have been complied with, properly traversed, or rendered moot. It is now believed that all of the pending claims in the present application, namely, Claims

1-3 and 5-8 are in condition for allowance. Favorable consideration and allowance of Claims 1-3 and 5-8 are earnestly solicited.

If any issue regarding the allowability of any of the pending Claims in the present Application could be readily resolved, or if other action could be taken to further advance this Application such as an Examiner's Amendment, or if the Examiner should have any questions regarding this present Amendment, it is respectfully requested that Examiner please telephone the Applicants' undersigned attorney in this regard.

Respectfully submitted,

Date: June 24 2004

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ATTORNEY FOR APPLICANTS

**IN THE UNITED STATES PATENT AND TRADE MARK OFFICE**

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| In re Application of | : | | |
| Kirk et al. | : | | |
| Serial No. 09/803,191 | : | | |
| Filed: 03/09/2001 | : | Examiner: | DANG, HOANG C |
| For: ADI Centralizer | : | Art Unit : | 3672 |

**Declaration**

I, Ian Kirk of 131 North Deeside Road, Milltimber, Aberdeen, AB13 0JF to hereby declare as follows:

1. I am a Director and shareholder of Downhole Products plc (the Assignee of the present Application) and I have held this position for 10 years.

2. I have worked in the area of drilling centralizers for 12 years.

3. I am qualified as Senior Design Engineer and I have a Higher National Diploma (HND) in Mechanical Engineering.

4. I am a co-inventor of United States Patent Application Number 09/803191.

5. I first had the idea to manufacture a centralizer from austemperised ductile iron (ADI) in 1994.

6. I then worked in collaboration with 'The Taylor Group' in 1994.

7. 'The Taylor Group' are specialists in Ductile & Austenitic Iron castings and have worked in such an industry for 55 years.

8. After 8 months 'The Taylor Group' indicated that they considered it impossible to make an ADI centralizer and my collaboration with them ceased.

9. I then worked in collaboration with 'The Castings Development Centre' in 1997.

10. 'The Castings Development Centre' (formerly BCIRA) are specialists in providing R&D and a wide range of impartial technical services for casting producers and users worldwide and have worked in such an industry for 44 years.

11. After 18 months 'The Castings Development Centre' indicated that they considered it impossible to make an acceptable ADI centralizer and my collaboration with them ceased. Attached hereto as an example of problems faced, is Appendix A, a facsimile letter from The Castings Development Centre to Downhole Products PLC detailing one of the problems encountered in manufacturing a centralizer from ADI.

12. I then started working in collaboration with Lucy Castings in 1999. They have 240 years experience in Iron castings & 40 years in Ductile Iron Castings.

13. After numerous attempts over 12 months, we managed to overcome the technical difficulties in manufacturing centralizers from ADI. A successful method of making a centralizer from ADI is disclosed in the present application.

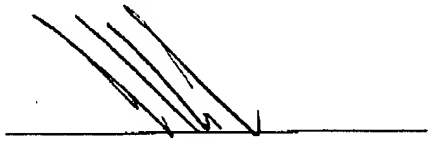
14. The ADI centralizer has, to date, been sold in Colombia, Denmark, Egypt, Germany, India, Italy, Norway, Nigeria, Qatar, UAE, Venezuela and Vietnam with the potential demand in the United States of America for differing sizes being substantial enough to justify local manufacture and a US based subsidiary Company.

15. As of 31st January 2004 sales of the ADI centralizer have totalled over 3000 units.

16. On June 10th 2003 we, Downhole Products plc commissioned Rochester Metal Products Corp. 616 Indiana Ave. Rochester. IN. to produce the ADI centralizer in the United States of America.

17. The commercial success of the ADI centralizer has contributed to our decision to set up a Downhole Products USA – a US company registered in Delaware under authentication No.2221532 – to meet the potential demand in North America.

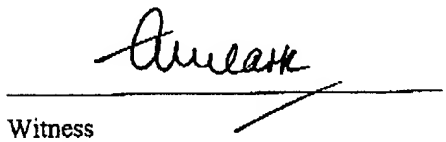
18. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.



Ian Kirk

3rd February 2004.

Date



Witness

3 FEB 2004

Date

TO DOWNHOLE PRODUCTS

FAX No. 01224 - 785222

ATTN. IAN KIRK.

DATE 22-5-98

FROM TIM WHITTAKER

OUR REF. —

YOUR REF. —

PAGE 1 OF 1

THE CASTINGS DEVELOPMENT CENTRE

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IAN,

I THOUGHT IT WAS ABOUT TIME TO UPDATE YOU WITH A STATUS ON YOUR SP. ROMIZER CASTING.

AFTER THE COMPLETION OF THE TOOLING, WE HAVE PRODUCED 2 SETS OF CASTINGS (4 OFF IN TOTAL). IT IS FAIR TO SAY THAT THESE CASTINGS CONTAIN AN UNNACEPTABLE LEVEL OF 'TEARING'. A METHOD REVIEW IS UNDERWAY TO ELIMINATE THIS. TODAY IS MY LAST DAY WORKING FOR CDC. IN FACT, I AM JOINING DENRAMET. YOUR CDC CONTACT NOW IS WILL JEFFS OR COLIN BLACKBURN.

BEST REGARDS.

T. WHITTAKER